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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.  | CONFIRMATION NO. |
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| 09/576,727      | 05/23/2000  | Chad A. Cobbley      | 3639.1US (97-1383.1) | 3108             |

7590 08/02/2006

James R. Duzan  
Trask Britt  
P O Box 2550  
Salt Lake City, UT 84110

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| EXAMINER |
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TRINH, MINH N

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| ART UNIT | PAPER NUMBER |
|----------|--------------|

3729

DATE MAILED: 08/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/576,727

Applicant(s)

COBBLEY ET AL.

Examiner

Minh Trinh

Art Unit

3729

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3, 5, 6, 8-18-20, 22, 23, 25-34 is/are pending in the application.
- 4a) Of the above claim(s) 9-17 and 26-34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 6, 8, 18-20, 22, 23 and 25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. Applicant amendment filed on 6/12/06 has been fully considered and made of record.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claims 1-3, 6, 8, 18-20, 22, 23 and 25, are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakemi et al (US 5,655,704)

Sakemi et al disclose an apparatus or an assembly system for placing a plurality of conductive spheres on a substrate comprising: a stencil plate 4 with upper and lower surfaces and a first pattern of plurality of through holes 4a, said stencil plate configured to place a plurality of conductive spheres 3 in said first pattern on a approximate surface of the substrate 2(see Figs. 3-4); a hopper (container 12) extending across at least a portion of the upper surface of said stencil plate 4 and closely spaced (gap between 12 and surface of 4) therefrom to maintain control over all the spheres therein (see Fig. 4, col. 4, lines 28-36) the hopper 12 having a bottom opening with a dimension extending across the first pattern for dispersing said spheres into the through holes 4a of the stencil plate 4 and a position apparatus 8 (see Fig. 1) for moving the hopper 12 over the first pattern relative to the stencil plate 4 (see Fig. 4) for place said spheres into said through holes 4a onto the proximate surface of said substrate 2 (see Fig. 4). Sakemi et al do not teach the through hole of the stencil having a diameter in the range of about 2-

Art Unit: 3729

10 of a conductive sphere. However, it would have been an obvious matter of design choice to choose any desired stencil diameter configurations including size and shape requirements since applicant has not disclosed that the claimed through hole of the stencil having exact a diameter in the range of about 2-10 of a conductive sphere size where solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the stencil plate through hole configurations as shown in Fig. 4 of the Sakemi et al reference.

As applied to claims 2-3 and 6, Sakemi et al teach the spheres being dropped and passed downwardly through the through holes by gravitation force as recited in claim 2 (see Fig. 4 which shows the solder balls being gravity fed into the mounting pads of the substrate 2); and the limitations of claims 3 and 6 (refer to Fig. 4 and the discussion at col. 4, lines 28-36).

As applied to claim 8, Sakemi et al teach the stencil 4 is being placed apart from the substrate 2 (see illustration of Fig. 4).

As applied to claim 5 and 22, Sakemi et al do not teach the first pattern holes diameter is greater than the diameter of each of the spheres by up to 1mm. With respect to the above configurations, it would have been an obvious matter of design choice to choose pattern holes diameter greater than the diameter of the spheres, since applicant has not disclosed that the exact size configurations as described above is critical which would solve any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the with the size configurations as disclosed by each of the prior art references (i.e., see Fig. 4 of Sakemi

Art Unit: 3729

et al, which shows the pattern holes 4a being greater than the diameter of the spheres 3, etc).

As applied to claims 19-20 and 23, Sakemi et al teach the spheres being dropped and passed downwardly through the through holes by gravitation force as recited in claim 19 (see Fig. 4 which shows the solder balls being gravity feed into the mounting pads of the substrate 2); and the limitations of claims 20 and 23 (see Fig. 4, and the discussion at col. 4, lines 28-36).

As applied to claim 25, Sakemi et al teach the stencil 4 being placed apart from the substrate 2 (see illustration of Fig. 4).

### ***Response to Arguments***

4. Amendment to the claims appears to overcome the 112 first and second paragraphs.

#### **Regarding prior art:**

Applicant's arguments filed on 6/12/06 regarding the prior art rejections have been fully considered but they are not persuasive.

Applicants argue that there is no teaching or suggestion in the Sakemi et al. reference to dispense solder paste from the hopper into or through a template onto the substrate (see "Remarks", page 9). The Examiner disagrees because the Sakemi et al disclose the above subject matter i.e., see Fig. 4, depicts the solder paste or ball being distributed into substrate 2 by template 4. Therefore, the limitation of dispensing solder balls onto electrodes onto the substrate is still met by Sakemi et al.

Art Unit: 3729

Regarding the “dispensing solder ball onto electrodes located in recesses in a substrate”(see Remarks, page 9). Note the limitation recites: “. . . electrodes located in recesses in a substrate” is not recited in the rejected claims also such limitation does not further limit the claimed system” because it is directed to a product but not system.

Applicants also argue that Sakemi et al reference fails to teach or suggest the subject matter of presently amended in claims 1 and 18 as “a hopper having bottom and being configured where the distant between the stencil plate and bottom of the hopper about less than 1/2 or 1/3of the solder ball. The examiner disagrees, Applicants are referring to Fig. 4 of Sakemi et al which shows the above configuration requirements where the distant between the stencil plate and bottom of the hopper is within the range of 1/3-1/2 compare to the diameter of the solder ball, therefore, Applicants arguments are not persuasive and the prior art rejections is maintained as same reasons of record.

Applicant's arguments do not comply with 37 CFR 1.111(c) because they do not clearly point out the patentable novelty which he or she thinks the claims present in view of the state of the art disclosed by the references cited or the objections made. Further, they do not show how the amendments avoid such rejections.

5. This application contains claims 9-17 and 26-34 drawn to an invention nonelected. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

***Conclusion***

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Minh Trinh whose telephone number is (571) 272-4569. The examiner can normally be reached on Monday -Thursday 8:00 am to 4:30 pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on (571) 272-4690. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 3729

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

mt

7/31/06



Minh Trinh  
Primary Examiner